DOCUMENT RESUME

ED 375 676 FL 022 532

AUTHOR Schmitt, Dorren R.
TITLE Longitudinal Study of a Bilingual Program for Four Year Olds.
PUB DATE Sep 94
NOTE 14p.; Paper presented at the Annual Meeting of the Association of Louisiana Evaluators (New Orleans, LA, September 30, 1994).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Achievement; *Bilingual Education Programs; Diagnostic Tests; *Limited English Speaking; Longitudinal Studies; Lower Class Students; Preschool Children; *Preschool Education; Program Descriptions; *Program Evaluation
IDENTIFIERS California Achievement Tests; Jefferson Parish Public Schools LA

ABSTRACT

This paper reports on a longitudinal study of the Project Preschool PLUS bilingual program conducted by two elementary schools in Jefferson Parish, Louisiana. The program serves limited English proficient (LEP) students, the majority of whom qualify for free or reduced price lunches. It emphasizes whole group, small group, and individualized instruction, as well as field trips. Standard diagnostic tests were administered to students at the beginning and end of the school year during the preschool program, while the California Achievement Test (CAT) was administered to kindergartners and first-graders who had completed the program. The study found that Project PLUS was able to make noteworthy impacts on the preschoolers who finished the program. Seventy-one percent of these students were developmentally at or above their chronological age by the end of the school year. On all subscales of the CAT, the former PLUS students scored significantly higher than a control group of similar LEP students. (MDM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

Ale94.log 9/94

Longitudinal Study of a Bilingual Program for Four Year Olds

ED 375 676

Dorren R. Schmitt

University of New Orleans

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Dorren R. Schmitt

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it

☐ Minor changes have been made to improve reproduction quality

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

FL022532

Paper presented at the annual meeting of the Association of Louisiana Evaluators, New Orleans, LA September 30, 1994.

BEST COPY AVAILABLE

INTRODUCTION

Project Preschool PLUS is located in Jefferson Parish. Jefferson Parish Public Schools serves 57,277 students. The district's ethnic distribution includes: 52% White, 38% Black, 5% Hispanic, 4% Asian, and less than 1% American Indian. Jefferson Parish serves the largest number of identified Limited English Proficiency (LEP) students in the state. Eighty percent of these students qualify for free or reduced price lunches.

School Facilities

Two schools were selected for PLUS serving both sides of the Mississippi River. Classes were established in one east bank and one west bank school. Both schools were chosen based upon site administration and staff interest in the program, classroom and outside play space availability, and location. Both classrooms are based in schools with bilingual kindergarten classes. The materials equipping the classes allow the teachers to provide a bilingual curriculum that is developmentally appropriate and meets the objectives of the program.

Program Description

The lesson plans indicated that time was allocated for whole group, small group, and individual instruction. Besides classroom experiences, field trips to the Aquarium, Zoo, Nature Center, et cetera aided to increase the children's experiences. Each classroom had a certified teacher and a teacher assistant.

All teachers and assistants were bilingual. Only one teacher was certified early childhood and English as a Second Language. Parents volunteered in the classroom once a month. The parents served as an essential part of the program.

Data Collection Procedures

PLUS teachers administered the PreLAS and the Brigance Diagnostic Inventory. The PreLAS and the Brigance were administered in August and in May.

For the logitudinal study, kindergarteners and first graders were administered the California Achievement Test (CAT) during April. A control group for the kindergarteners were randomly selected from within in the Parish. The control group for the first graders remianed the same from those selected when the children were kindergarteners in 1992-93. There was attrition for both the first grader groups.

EVALUATION RESULTS

Demographics

Forty students were placed in the project's two classrooms. Thirty-nine completed the year. Twenty-three students were boys while 16 were girls. The mean entrance age was 4 years 5 months. Thirty-one students scored as a Category 1 speaker on the PreLAS, two were Category 2, five were Category 3, one was a Category 4. The mean level was 1.39. Also, the mean raw score for the August 1993 PreLAS was 30.15.

In May, the average age was 5 years 2 months; the age range was from 4 years 7 months to 5 years 6 months. Seven students were in Category 1, 11 were Category 2, 15 were Category 3, five were Category 4, and one was a Category 5. The mean level was 2.54. The mean raw score for the PreLAS for the May 1994 administration was 70.18.

By May 1994, all but twelve students increased at least one category. The gains in PreLAS categories include: 12 had no gain, 14 gained one level, nine gained two levels, three gained three levels, and one gained four levels. Thus, 69 percent of the student gained at least one level. The mean level change was 1.92. The least gain in the raw score was 2.0 while the most gain was 91.5. The mean raw score gain was 40.03.

Brigance Diagnostic Inventory Analysis

To determine whether children in Preschool PLUS were maintaining their developmental ages, the Brigance was administered as a pre/post test. Seven subtests were evaluated: Gross Motor Skills (GM), Fine Motor Skills (FM), Self-Help Skills (SH), General Knowledge/Comprehension (GK/C), Speech and Language Skills (SL), Social and Emotional Development (SE), and Readiness (R). Mean ages, for each subtest, were determined from the individual items. A total mean age was determined from the total set of items administered.

The mean age on the pre-test was 3 years 8 months and on the post-test was 4 years 10 months. The mean developmental change

was approximately 1 year 2 months. The range of growth was between 9 months and 1 year 6 months.

On the Brigance pre-test, 100 percent of the children scored below their chronological age. The mean difference was 1 year 6 months below age level. The range of difference was between 3 months below to 2 years 5 months.

Nine students scored developmentally below their actual age, while 28 (71%) students scored at or above their actual age, and two student had missing data on the Brigance post-test. The mean difference between actual age and post-test developmental age was approximately four months below actual age. The differences between actual age and developmental age ranged from six months above age level to one year below age level.

Logitudinal Analysis

The 1993-94 school year is the third year of Project PLUS. A longitudinal study was conducted to track the academic progress of PLUS students as compared to non-PLUS ESOL students. Two sets of analyses were performed. One-way Analyses of Variances (ANOVAs) were performed for 92-93 students for Reading Total and Math Concepts, who are now in kindergarten. One-way ANOVAs were performed for 91-92 students for Reading, Language Arts, and Math Totals, who are not in first grade.

92-93 Students

Twenty-seven Project PLUS participants were still in the school system and had CAT test scores. Thirty ESOL/Bilingual Kindergartners were randomly selected as a control group. There were statistically significant differences between the two groups for both the Reading Total and Math Concepts. In both cases, the PLUS students scored higher on the CAT than did their cohorts in the control group. Table 1 presents the means and standard deviations for the control and PLUS students. Tables 2 and 3 presents the analysis of variance tables for Reading Total and Math Concepts, respectively.

Educationally significant results were also produced in both analyses. Eta squared was 0.106 and 0.113 for Reading Total and Math Concepts, respectively. Eta squared is an indication of the percent of variance accounted for by group differences. Thus, group accounted for 10.6% of Reading Total variance, and group accounted for 11.3% of Math Concepts variance.

Two students were referred to the Gifted and Talented program. The remainder of the students will be attending regular first grade.

91-92 Students

Thirty Project PLUS participants were still in the school system and had CAT test scores. Thirty-one ESOL/Bilingual Kindergartners were randomly selected as a control group. There were statistically significant differences between the two groups

for both the Language Total and Math Total, but not Reading Total. On all three tests, the PLUS students scored higher on the CAT than did their cohorts in the control group. Table 4 presents the means and standard deviations for the control and PLUS students. Tables 5, 6 and 7 presents the analysis of variance tables for Language Total, Reading Total, and Math Total, respectively.

Educationally significant results were also produced for Language Total. Eta squared were 0.062, 0.084, and 0.090 for Reading Total, Math Total, and Language Total, respectively. Eta squared is an indication of the percent of variance accounted for by group differences. Thus, group accounted for 6.2% of Reading Total variance, and 8.4% of Math Total variance, and 9.9% of Language Total variance.

Tracking these students for the past two years, Gap Reduction was used for Reading Total. Gap Reduction helps to visually see changes in the PLUS students compared to other groups. The two groups compared to Project PLUS students, were the original control group and the national norm group. Table 8 presents the means for kindergarten (92-93) and first grade (93-94). Figure 1 presents the graph of the differences for Reading Total. The original control students stayed about the same, but the PLUS students made gains and closed the gap on the national norm group. The PLUS students gained nearly 11 NCEs in Reading over the past year. This is noteworthy gain.

Gap Reduction was also used for comparing students in Math. For kindergarten a subscore of Math Total, Math Concepts, was only tested, while in first grade all subparts of Math Total are tested and the entire total was used. Thus, caution must be exercised when interpreting improvement in mathematics. The two groups compared to Project PLUS students, were the original control group and the national norm group. Table 9 presents the means for kindergarten (92-93) and first grade (93-94). Figure 2 presents the graph of the differences for Math.

The original control students declined with the addition of the other subparts in the Math Total. But, the PLUS students showed slight gains and closed the gap on the national norm group even with additional subparts added. Thus, the PLUS students have shown progress in Mathematics over the last year. The gain is approximately 1.5 NCEs.

Additionally, the effects of Project PLUS go beyond CAT scores. Two PLUS students from the 91-92 class were on the A/B honor roll for the second quarter. Thus, the skills learned are beginning to exhibit some transference into the daily academics of these students.

Three students were also referred to the School Based Committee to determine if evaluation for special education is appropriate. And, two students were placed in Special Education. One of the special education students are visually impaired.

CONCLUSIONS

Project PLUS was able to make noteworthy impacts on the 39 preschoolers who finished the program this school year. All developmentally improved. Seventy-one percent of these students were developmentally at or above their chronological age by the end of the May.

Additionally, all students scored significantly higher on the Pre-LAS. Noteworthy improvements in the raw scores, even for most students who did not increase one or more levels on the Pre-LAS, provides evidence that Project PLUS made a difference for these children.

Finally, the lasting effects of Project PLUS is also noteworthy. On all subscales of the CAT test, the former PLUS students scored significantly higher than the control group. Additionally, the PLUS students are closing the gap between them and the norming group. This provides evidence that Project PLUS has made substantial academic impact.

Table 1
Means and Standard Deviations for
92-93 PLUS Students and Control Group

	Control Group			PLUS Group		
Subtest	N	Mean	SD	N	Mean	SD
Math Con.	30	35.13	20.77	27	49.33	19.67
Read Tot	30	28.03	16.07	27	38.96	16.26

Table 2
Analysis of Variance Table for Reading Total
for 92-93 PLUS Students and Control Group

Source	SOS	DF	MS	F	p
Group	1697.54	1	1697.54	6.501	0.014
Error	14361.93	55	261.13		

Table 3
Analysis of Variance Table for Math Concepts
for 92-93 PLUS Students and Control Group

Source	SOS	DF	MS	F	p
Group	2865.41	1	2865.41	6.982	0.011
Error	22571.47	55	410.39		

Table 4
Means and Standard Deviations for
91-92 PLUS Students and Control Group

	Control Group			PLUS Group		
Subtest	N	Mean	SD	N	Mean	SD
Lang Tot	30	34.43	17.75	29	45.28	17.36
Math Tot	30	36.67	18.28	29	47.28	17.30
Read Tot	31	34.67	17.19	30	43.43	17.32

Table 5
Analysis of Variance Table for Language Total
for 91-92 PLUS Students and Control Group

Source	SOS	DF	MS	F	p
Group	1733.52	1	1733.52	5.622	0.021
Error	17577.16	57	308.37		

Table 6
Analysis of Variance Table for Reading Total
for 91-92 PLUS Students and Control Group

Source	SOS	DF	MS	F	p
Group	1168.84	1	1168.84	3.928	0.052
Error	17558.14	59	297.60		

Table 7
Analysis of Variance Table for Math Total
for 91-92 PLUS Students and Control Group

Source	SOS	DF	MS	F	p
Group	1659.71	1	1659.71	5.235	0.026
Error	18070.46	57	317.03		

Table 8
Reading Total Means for
91-92 PLUS Students, Control, and Norm Groups

	Kindergarten	First Grade
PLUS	36.44	43.43
Control	34.45	34.66
Norm	50	50

Figure 1
Gap Reduction for 91-92 PLUS Student on Reading Total

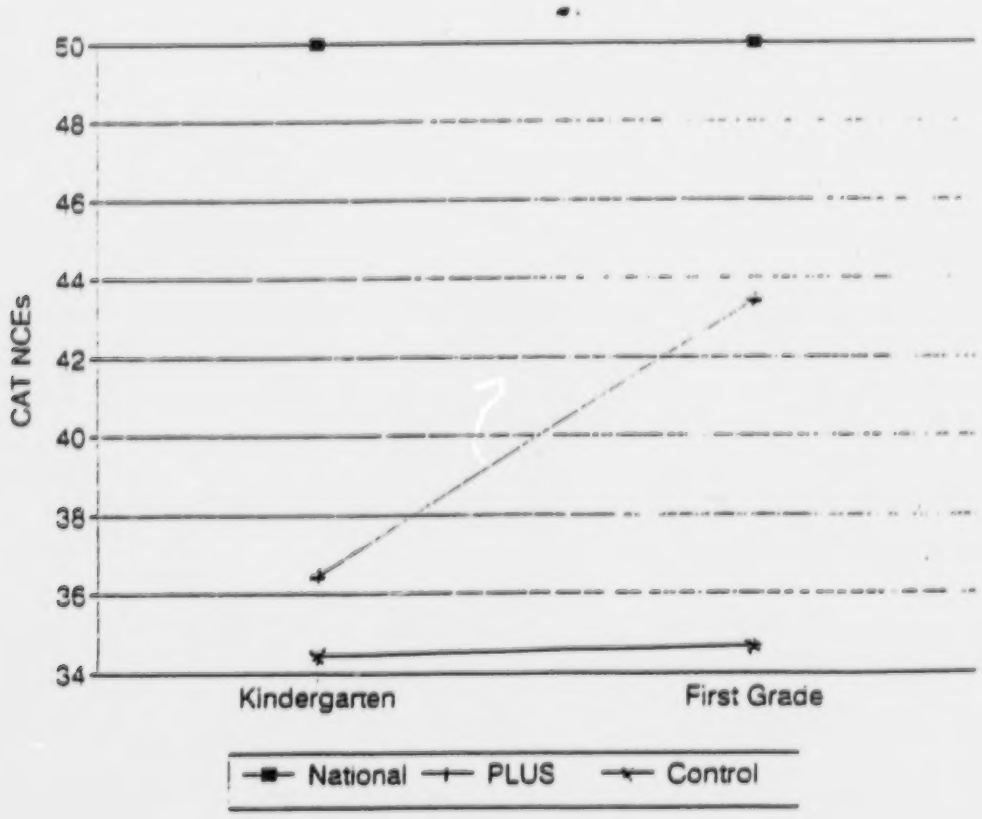

Table 9
Mathematics Means for
91-92 PLUS Students, Control, and Norm Groups

	Kindergartners[1]	First Grade
PLUS	45.68	47.28
Control	45.91	36.67
Norm	50	50

[1] Only Math Concepts were tested

Figure 2
Gap Reduction for 91-92 PLUS Student on Mathematics